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ABSTRACT

The project approach to learning includes a focus on in-depth study of a topic, along with teaching style, learning style, and theme. In contrast to a thematic approach, the project approach encourages children to be actively engaged in their own studies, with teachers acting as guides and facilitators. In the project approach, students use subject matter areas as tools in their chosen investigations. Katz and Chard's "Engaging Children's Minds: The Project Approach" is drawn upon as a starting point for this case study. First grade students were involved in two units: (1) a thematic unit involving dinosaurs; and (2) a project-based unit about frogs. Comparisons were made between the two experiences. Particular attention was given to children's enthusiasm for the work; the reading, writing, and learning in other curriculum areas; and analysis of differences in the two learning approaches. The results showed that children exhibited greater enthusiasm for the collaborative work in the project approach than in the thematic unit. Children were also more involved in reading and research in the frog project than the dinosaur unit, and made many more decisions about their own learning. Children who use these skills in meaningful, project-based situations maintain positive outlooks toward learning, effecting learning in later years. Contains 11 references. (BGC)

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Will a project approach to learning provide children opportunities to do purposeful reading and writing, as well as provide opportunities for authentic learning in other curriculum areas?

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Research Investigation
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PS 023527

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ABSTRACT

Will a project approach to learning provide children opportunities to do purposeful reading and writing, as well as provide opportunities for authentic learning in other curriculum area?

Students in first grade were involved in two different units, one a thematic unit involving dinosaurs, and the other a project based unit about frogs. Comparisons were made between the two experiences. Particular attention was given to the children's enthusiasm for the work, the reading, writing, and learning in other curriculum areas that occurred, and analysis of the differences in two approaches to learning.

The results of the study showed a greater enthusiasm for the collaborative work in the project approach. Children also were more involved in reading and research in the frog project, and made many more decisions about their own learning.

Will a project approach to learning provide children opportunities to do purposeful reading and writing, as well as provide opportunities for authentic learning in other curriculum areas.?

What is the Project Approach to learning?

In recent years there has been a renewed interest in the project approach to learning. "Project", as defined by Lillian Katz, and Sylvia Chard, in their book, *Engaging Children's Mind: The Project Approach*, "is an in-depth study of a particular topic that one or more children undertakes" (Katz & Chard,1989, p. 2). A project approach also includes the style of teaching and learning as well as the theme studied. Children are encouraged to be actively engaged in their own studies with teachers acting as guides and facilitators. Project topics are "usually drawn from the world that is familiar to the children"(Katz & Chard,1989, p. 3).

The project approach differs from an integrated thematic unit approach in several important ways. In a thematic unit the different subject areas are connected and pulled into the unit of study by the use of a general theme. The "connections" may sometimes be tenuous and related to the theme by the weakest of links. (Atwerger & Flores,1994) For example, during a farm unit children might use farm animals as math manipulatives because farms are being studied. The theme becomes an organizing technique, but the subject matter investigations often remain separate and unrelated. "Teachers . . . often feel a responsibility to cover the prescribed skills within the other subject areas" (Atwerger & Flores, 1994, p.3). The emphasis may be to make sure the subject area goals are covered. (Children learn about math story problems, this time with farm animals, next time with insects.)

In the project approach, by contrast, the students use the subject matter areas as tools in their own chosen investigations. "Those subject areas that can offer investigative and informational resources critical to the theme topic are selectively utilized" (Atwerger & Flores, 1994, p. 4). Math, for example, may be an important tool for a group of children who want to present a graph to the class to show which farm animals are special class favorites. As in the real world, there is a natural integration of subject matter during the investigation (Staab, 1991).

In a thematic approach the teacher plans what will be studied, the goals for the unit, the opportunities to correlate the subject areas, etc. Everyone travels "a path we have set and everyone (ends) up at a predetermined point" (Fisher and Cordeiro, 1994, p.3) Bess Atwerger and

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Barbara Flores, in an article in Primary Voices, point out two drawbacks of such an organizing system. First, "subject areas are conceived as static bodies of knowledge" with a body of facts to learn and a specific order in which this learning needs to occur." Secondly, "knowledge is viewed as externally developed by others. . . and delivered to students" (Atwerger & Flores, 1994, p.4). Students receive "gifts" of knowledge from the teacher.

In a project approach, by contrast, students participate in the selection of topics to be studied and come up with areas of interest that they want to investigate. The information is not being fed to the children by the teachers. Rather, they are searching for it themselves and using reading, writing, math, etc. as tools to find their answers. The teacher, then becomes the co-learner and guide to students to help them find out information on their subject of study (Katz and Chard,1989).

Of course, the project approach does not prevent the teacher from organizing related activities and centers similar to ones that you might see in an thematic unit structure. Nor does it prevent the teacher from including his/her own topics of interest to be studied. The difference is that the investigation is student generated. Teachers, of course, do not sit back and let the students flounder around trying to figure out what they want to do. Instead, they need to have previously brainstormed ideas themselves on the children's topic of interest, discussed the possibilities of where study could go, formed provocative questions to encourage the children to think about their subject of interest, thought about the questions children might have, etc. and be ready to help children formulate questions and guide them to available resources. (Rankin, Baji, 1994) "The adults want to help children set up a context in which the children can find their own questions and problems to explore"(Rankin, Baji, 1994, p. 193).

For example, several children might want to know all there is to know about pigs. The teacher's responsibility might be to help these children brainstorm ways to find out about pigs. Would they want to visit someone with pigs and interview that person? If so, what about brainstorming a list of questions to ask? Where would they find out other information, and how would they record what they've found? Further student extensions might include a search into different kinds of pigs, how pigs are like or different from people, opportunities for a pig farm dramatic play, a graph on class feelings about pigs, etc. The children researchers would also want to decide how to present their newly gained

knowledge about pigs to the other students. Suggestions of how to authentically use reading, writing, and math for such reporting would also be an important teacher responsibility.

Project Approach Benefits

How does a project approach to teaching benefit children? As mentioned earlier, such an approach includes children in the process of selecting topics of interest and pursuing studies that are of interest to them. The statement that "learning is likely to be more effective if it grows out of what interests the learner rather than what interests the teacher"(Katz & Chard, 1989, p. 8) is one from the Plowdon report describing open education in the late 60's and 70's, but is equally applicable to the project approach today.

Young children also need to construct their understanding of what is being studied by connecting it with what they already know. By allowing children to be included in the selection of study topics the connection to former understandings is solidified (Laminack & Lawing, 1994).

Children's minds need to be engaged. In fact, "the younger the child, the more important it is that most activities provided for them engage their intellect" (Katz & Chard, 1989, p. 4). Children want to know about what is at hand and what they can see and manipulate themselves (Carini 1977). By providing opportunities for children to study their own environment,the project approach helps to insure that children are intellectually engaged as they "interact with people, objects,and the environment in ways that have personal meaning to them"(Katz & Chard, 1989, p. 3).

Children, of course, have already had experience as natural learners even before entering school. Laminack and Lawing even describe children as "budding curriculum builders" who have begun to make their own connections (Laminack & Lawing, 1994, p. 8). What is important, is for teachers to help children to also make connections between what is learned in school and the "out of school experiences". The project approach encourages children to see work and learning at school as part of the "real, daily life experiences" rather than as disconnected skill activities in various subject areas. (Katz & Chard,1989).

Another advantage to the project approach is the opportunity for children to work together collaboratively to construct knowledge. Children are able to bounce their ideas off each other, give their own opinions, disagree, acknowledge another's point of view, negotiate solutions, and in the process construct new knowledge and understandings

(Rinaldi, C., 1994). Mary Trapanier Street also emphasizes how "meaningful relevant projects" allow children to construct knowledge: "A real problem for a child causes disequilibrium in the child. The child then actively works to solve the problem and, as a consequence, constructs new knowledge. Such knowledge is retained, while rote nonmeaningful learning is quickly forgotten" (Trapanier Street, 1993, p. 27).

The social ramifications of this collaborative work is also significant. Katz and Chard point out that "social competence can be strengthened when children engage in purposeful and worthwhile activities together" (Katz & Chard, 1989 p. 28). Projects provide such an opportunity, and the informal learning atmosphere also allows teachers to help those children who need extra help interacting with their peers. The need to include opportunities for growth in social skills becomes apparent when recent research has shown that young children who don't acquire minimal social skills risk possible problems in later life including school failure, delinquency, problems with mental health, and marital difficulties (Katz & Chard, 1989).

In addition to providing chances for young students to grow in their social skills, the project approach also creates opportunities for children to increase their communication skills through interactive conversations. Researchers see early childhood as a vital time for children to develop their communicative competence, and point out that "all three basic functions of language, namely communication, expression, and reasoning are enhanced when children engage in conversation" (Nelson 1985; Wells, 1983, 1986 in Katz & Chard,1989, p. 28). According to studies by Bruner, there is a much greater chance for conversations to occur between children when they able to work together in small groups of 3 or 4 children and when there is something of real interest happening (Bruner, 1980 in Katz & Chard,1989). The project approach allows for just such small group interactions.

Because children in the project approach are heterogeneously grouped many of the pitfalls of ability grouping are also avoided (Katz & Chard 1989).

Children who work on projects are also able to make many decisions about what they will study and become "skilled at directing their own learning", which many experts view as a fundamental goal "for a sound educational program for young children" (Gareau & Kennedy, 1991, p.46).

Because projects are designed to examine subjects that are meaningful and relevant, children are intrinsically motivated to learn.

Rewarding experiences in each project, in turn, encourage children to "develop a positive disposition for learning" (Katz & Chard, 1989 in Trepanier,1993, p. 27).

Finally, research studies show that although "children in open education were no different from others in achievement, locus of control, self-concept, and anxiety, they were at an advantage in their attitudes toward schools, and teachers, curiosity, and general mental ability" (Walberg, 1984 in Katz & Chard, 1989 p.47).

What I Used to Do

I have been a big fan of integrated thematic units and have been using them almost since I first started teaching. When I began teaching first grade I added the literature/reading connection by providing multiple copies of books for children to read which correlated with the topic at hand.

The units that I decided to teach were ones that had special appeal to children (insects, pets farms, dinosaurs, etc.) and were often, in fact, ones that they had expressed interest in themselves. The children, however, did not take part in the decisions of what would be studied, and the format, goals, and learning activities were all preordained.

Dinosaur Unit

For example, when the children were involved in the dinosaur unit, they did have the option of choosing a favorite dinosaur to study, but I provided a list of questions to be answered about the chosen dinosaur. I also eliminated the big four (tyrannosaurus, stegosaurus, apatosaurus, and triceratops) from the study because everyone liked them, and it wouldn't be fair to let just one person study these prized dinosaurs. I didn't even think about a small group research, even though there was tremendous enthusiasm for these particular prehistoric animals.

It would be inaccurate to state that the children were not interested in dinosaurs. They were fascinated with them and were disappointed when I finally returned some dinosaur books to the school library after a month's use. I even brought some mini dinosaur encyclopedias back out again because of requests from children. The difference was not in interest but in the enthusiasm for the specific research study.

The children studying dinosaurs were enthusiastic about the subject matter but not about my prearranged questions. When they sat down to answer my questions about dinosaurs, they must have found them overwhelming. There were so many things to find out, and the answers to my questions were not the answers they were looking for. Very little

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writing was done, and children kept asking me to help them read what it was they needed to find out.

The students' own interests about dinosaurs cropped up in their free reading time. During and after our dinosaur unit, a small group of children loved pouring through the encyclopedias investigating their own questions. Rick wanted to know how tall his dinosaur, Albertosaurus, was. His question makes me think of the wonderful dinosaur project at Reggio Emilia where children actually drew a life size dinosaur after a good deal of mathematical calculations and drawings on graph paper (Rankin, Baji, 1994). Another child wanted to compare his dinosaur's size with that of his friends The dinosaurs were both carnivores, and the boys wanted to know whose was strongest. There were many missed opportunities for extended research with the dinosaur unit.

The dinosaur reports the children gave were somewhat stilted and uninteresting. They regurgitated the same answers to the same questions that I gave them. They liked best the information about whom their dinosaurs were related to, who or what their dinosaur liked to eat, and who liked to eat them. Instead of having the children answer my questions I could have had them come up with their own questions of interest. If the students expressed interest about their dinosaur's relatives and eating habits this information could have been compiled on a chart similar to the one shown in Elena Castro's description of an insect unit. (Castro, 1994) Such a chart would then be readily available for children to read and revamp as necessary.

I was particularly fascinated with the dinosaur study at Reggio Emelia where children's conversations and questions were first stimulated by encouraging the children to draw pictures of dinosaurs and then providing opportunities for them to make clay renditions. These artistic pursuits provided a time for the children to informally talk with each other and wonder aloud about interesting, researchable questions.

How I Changed

The first graders were fascinated with the tadpoles we had in our classroom. They had arrived as tiny black dots and now were huge active tadpoles who looked like they would become the monster frogs of the world. Because we were still heavily into dinosaurs, I had not provided much information about the life of frogs. The children had had opportunities to write 'tadpole" diaries where they drew pictures and described how they looked and what they could do.

Since I felt that I had let a learning opportunity slip away, I decided that the first graders might enjoy doing their own research about frogs. I asked them to think about what might be interesting to study about frogs and got some immediate enthusiastic responses.

As the children responded orally I asked them to write down their question as well. One first grader named Jimmy immediately began talking about how far frogs could jump and used his hands to show how far and how high the frog he had seen jumped. His enthusiasm was obvious and spread to other children who wanted to know how big and small frogs were, what thy ate, how their tongues worked, how they could jump so far, etc.

Later during a transition time Jimmy again used his hands to show me the size of a frog that he had held. On my suggestion another child measured the size with a ruler. I have fond memories of fat toads in my own childhood backyard and, in response to Jimmy's comments about the size of frogs, I showed several children how big the toads were that I remembered. Craig, who had watched Jimmy's "frog" being measured, immediately ran to get the ruler to measure the size of my "toad". The natural math connections were already being made by the children themselves.

There was a big difference in the way children went about researching their own specific question about frogs. Unlike the dinosaur study, children did not need to research on their own. Children who chose the same or similar topics were matched, and those who were absent or did not choose a topic were put with others with whom they might work compatibly. There was some negotiating of partners by the children, then all seemed ready to begin.

In order to be able to help students out, I had also planned the research sessions during a small group reading time when half the class was at a special and there was an additional teacher (school librarian) available in the room.

An enthusiasm which was noticeably missing from the assigned dinosaur research was apparent from the very beginning of our frog project. The first graders eagerly began their study. They immediately turned to the indexes as a way to find their information and tackled resource books with great vigor, even those written above their reading level. Because the groups were heterogeneously mixed, often one partner was able to read to the other. Both teachers were also available for extra help. Children enthusiastically began writing down notes. (Appendix A)

Even some children who did not produce much during other writing times were actively involved writing down information about their frog topic. The librarian, who also functions as a first grade reading teacher, was impressed about the "real research" the students were doing and commented on how she "wouldn't ever have to teach this group of students about indexes".

Of all the children working, only one child really seemed to avoid writing down ideas. He and his partner were having a good time looking for information on all the different kinds of frogs. They both, however, were having difficulty deciding what to write, since there was so many frogs to investigate. As a teacher, I should have helped them narrow down their topic, and then worked with the one student who is ADHD and needs lots of extra encouragement to get his ideas down on paper.

It would have been wonderful to 'borrow' a few different frogs from a pet store (tree frog, water frogs, grass frogs, etc.) and then encourage these two to compare and contrast the frogs. Next year I'll also have a telephone in my classroom, which would allow students to call and make such a request or interview the shop owner about the different kinds of frogs. In the description of Reggio Emilia, the author discusses how a small group of children who were studying dinosaurs "prepared questions ahead for each visitor so that each participant had specific questions to ask (Rankin, Baji, 1994, p 196). What a real life use of writing! In future research projects I'll remember to encourage more real life, purposeful writing experiences.

The first graders were delighted with the opportunity to share their frog information with the rest of the class. I offered them many suggestions on ways to share, including oral presentations, puppet shows, plays, posters, and clay models. The children filled out a form developed by Kathy Hanna, a early childhood teacher in Juneau, which encouraged them to describe how they would share their information and what materials they would need for preparation (Appendix B). A problem that developed as the children prepared for their presentations was that each partnership wanted to "do it all"-poster, play, clay figures, etc. Next time I'll need to encourage each group to discuss and decide on one or maybe two ways to present their information and then give them other research opportunities where they can use a different presentation format.

What a difference there was in the frog presentations compared to the dinosaur reports! The children knew what they wanted to say, and they

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cooperated with each other as they shared their information. One twosome, who studied how frogs camouflage themselves, did a neat little skit with one child costumed as a snake - construction paper stripes taped on his back. As Bobby, the snake, slithered by Jenny, the frog, she sat immobile in a costume resembling the nearby strawberry bush. The audience was fascinated.

The two boys, who were studying the length of frog's jumps, told the audience their information and then showed the audience pieces of yarn for two impressive frog jumpers -the bull frog and the leopard frog. What really fascinated the rest of the class was that neither Chris nor Jimmy, the two jump experts, could jump as far as the 4 inch bull frog! After the frog reports the two boys invited everyone over to see how far they would jump. They measured each jump with a borrowed tape measure and wrote down the jumps on a piece of paper. Nothing more was done with the information. It would have been great to encourage the boys to come up with some kind of graph.

My interactions with this group helped point out to me the need to work on my role a "guide" as opposed to "the person in charge". I suggested the yarn and the tape measure. What if I had, instead, just let the two children construct their own ways of measurement? (I think again of the great dinosaur measurement project at Reggio Emilia (Rankin, Baji, 1994) The measurement activity also gave me real insight into Jimmy's understanding of the number system. I had assumed that he was able to read two digit numbers, as he had identified several two digit numbers successfully during a individual session with me, but saw his confusion when he was measuring jumps with the tape measure. I was able to give Jimmy a little mini lesson on the spot and Jimmy's partner, Chris, helped him identify the numbers after I left. This session with Jimmy helped me realize how projects allow children to use math (and other subjects) in real life settings, and how the teacher has the opportunity to informally assess children's math and other understandings in an authentic environment.

The reports at the end of the project also allowed me to assess the first graders' research process. I was curious to see how children went about gathering information, and if their end report would show some of their frog learnings. In describing Reggio Emilia, Rankin states that

> Organizing the information to present to classmates clarifies and consolidates the knowledge the children gain from their work. Moreover, it allows adults to evaluate that work and the children's progress (Rankin, Baji, 1994, p. 209).

As I watched the reports I discovered that I needed to give more direction on how to use a play format in a report situation. One group, Julie and Jessica, first told about all the things they discovered frogs would eat, and then performed a play complete with dialogue that only once mentioned food in passing. The food comment had the two frogs eating grapes! The girls knew that plays usually had dialogue but didn't understand the need to incorporate their recently acquired knowledge about frogs' eating habits into the play.

A favorite part of the reports for both presenters and audience was the chance for the audience to ask the presenters questions. These questions gave me an opportunity to see how children think on their feet and field the questions. Although one first grader, Theresa, who was studying the different sizes of frogs, didn't know the answer to a question about how far the Goliath frog could jump, she suggested that it probably couldn't jump too far because it was so big.

The opportunities to ask questions also encouraged further research. One child asked Jessica and Julie, who were reporting on what frogs ate, if frogs ate mice. When they said they didn't think so, the child told them she would show them a picture of it in one of the books.

The enthusiasm for frogs did not stop at the end of the project. Several weeks after the conclusion of the frog project Curtis was ecstatic when he found pictures of frogs in a science magazine. Information on that page told the length of the jumps of both the Goliath frog and the smallest frog in the world This information made him even more excited since he and Theresa had been the ones to research information about the largest and smallest frog.

Our frog project also allowed for a logical extension of reading *Frog and Toad* stories and the writing of original, child-created frog and toad plays. The writing done by these heterogeneously grouped children was amazing! For the first time I saw one little girl truly excited about writing as she created her own script for her snake character. The other reluctant writer also loved the opportunity to write together in a group.

The project approach to learning seemed to fill a real need in my classroom. It allowed children to become the thinkers, organizers and doers. The collaboration between children was very successful. Peter, who often has trouble dealing socially with other children had a wonderful experience collaborating with just one other first grader. He is often off task during regular reading and writing activities, but was involved in all

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aspects of the frog research - the reading, writing, prop preparation, and presentation of a play about where frogs live.

Susie, who at the end of first grade still reads and writes at the emergent level, and who shows frustration with many tasks in school, was also a full participant all parts of research as she and her partner found out "how to take care of a frog". She and her partner Lucy had a great time together, and it seemed to be no problem at all that Lucy was a much more skilled reader and writer than Susie. Lucy helped Susie with the reading and writing, and Susie remembered important details for the report that Lucy forgot. (Appendix C) Obviously, project work agreed with Susie. She received peer support and, judging from her happy enthusiasm, must have felt comfortable with her work.

Concluding Remarks

Now that I have tried out a little piece of the project approach I am eager to provide more experiences. When I compare the writing done during project work with my regular writing folder time where children are free to write about any subject, I notice that there is more enthusiasm generated during project writing, perhaps because the subject is specific and collaboration is encouraged. It seems logical to expand my writing folder time to include opportunities for children to do some of their own individual and small group research. In fact, I have already begun to organize my classroom books with the idea of having resources available for those children who want to find out about specific subjects. One little boy this year really wanted to find out about whales and I just didn't "find time" for it. Next year, after my positive frog experience, I'll feel comfortable encouraging other whale (shark, snake) enthusiasts to pursue their topics of interest.

In fact, one of my first activities next year will be to find out what my new first graders' special interests are. With this information I would be able to then incorporate some of the interests into large class studies, as well as encourage small group study by children with similar interests.

At the beginning of the year I would like to model the project approach through whole class investigation which would also have opportunities for small group work and exploration.

I would also like to expand at least one project to include the pieces of construction and dramatic play that are an integral part oft Katz' and Chard's project approach. I can see how the construction projects really enable children to authentically use other curriculum areas as part of

their inquiry and design, and how the dramatic play helps solidify the new understandings of the topic studied. (Katz, Chard, 1989).

I must admit, however, that I'm a bit overwhelmed with the descriptions of the open-ended projects and feel that I still have a ways to go to become a "guide" and not the "fearless leader".

I will also remember Lillian Katz' and Sylvia Chard's reminder in *Engaging Children's Mind: The Project Approach* that the project approach should not make up the total curriculum in the early years or the primary years. In fact, they emphasize the importance of spontaneous play for younger children, and formal systematic instruction for school age children. "Systematic instruction is an approach to teaching individual children a progression of interrelated subskills, each of which contributes to greater total proficiency in skills such as reading and writing." (Katz & Chard, 1989, p.10). However, the authors also point out that the project approach provides an excellent vehicle for using and strengthening skills learned in systematic instruction. Children who use these skills successfully in a meaningful, project based learning situations, in turn, maintain a positive disposition towards learning which has lasting effects on learning in later years (Katz & Chard, 1989).

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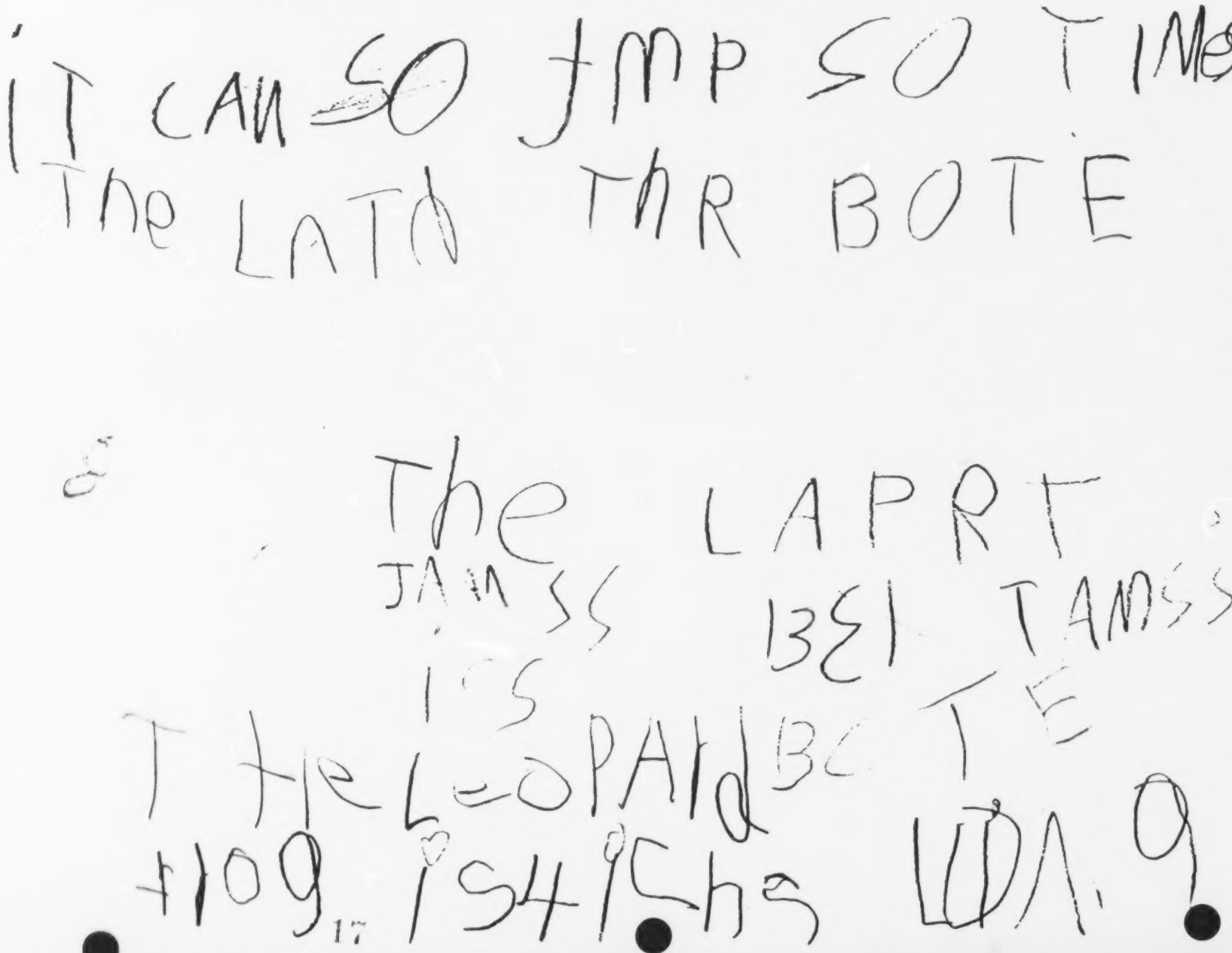
APPENDIX A

Chris and Jimmy were productive writers and enjoyed finding out about how far frogs can jump. They were sometimes "off task" during other writing activities.

BOLL frog

How far can frogs jump? (J.T.)



What materials will you need to share information with others?

clay what green brown blue

How will you share your information with others?

toad frog and a

Researchers name: AV Jt

Date: _____

APPENDIX B

Both Andrew and James are reluctant writers but were happy to write down information about their frog report.

How do you take care of a frog?

water weed.
Water weed, tiny animals in
he water, sometimes other tadpole
BABFOODSpinach
kepa frog near water.

APPENDIX C Susie and Lucy worked well together despite the big gap in their writing skills. I think Lucy probably helped Susie write down that tadpoles eat baby food spinach. However, the idea was definitely Susie's.